

Agenda item : F-2.1

40th Argos Operations Committee meeting
Prepared by CLS & CLS America, Inc.
Date : May 24th 2006

OPERATIONS REPORT

2005 operations Highlights

- NOAA N
- ARGOS2001 Phase2
- Shanghai, Tahiti, Seoul and Hyderabad real-time antennae

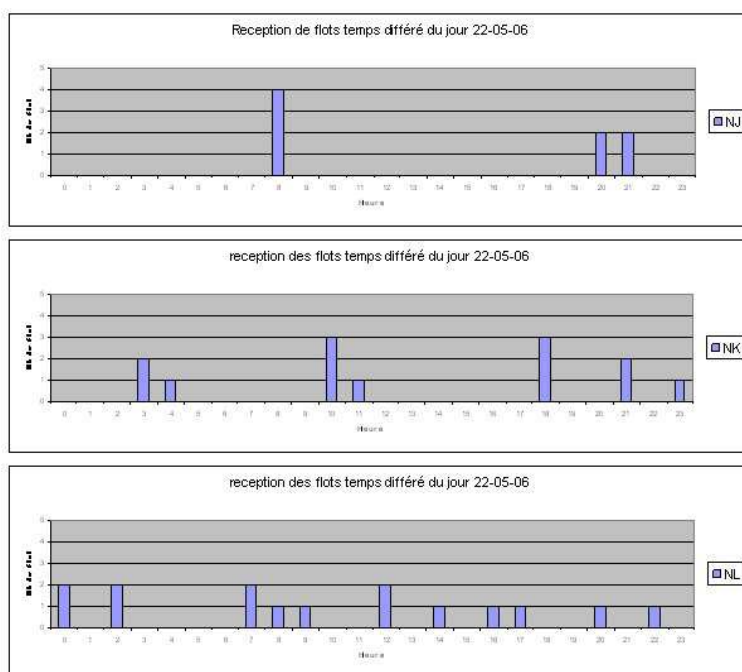
Ground receiving stations

Global stations

Operations were nominal on the two global stations able to acquire the STIP telemetry are Fairbanks (AK, USA) and Wallops Island (VA, USA) stations. NOAA-18 is delivered since May 2005 in addition of satellites NOAA-12, NOAA-14, NOAA-15, NOAA-16 and NOAA-17

With these two antennas, we have two blind orbits per day and per satellite. As regards NOAA-12, only two orbits per day are delivered by NOAA/NESDIS. The STIP telemetry from NOAA-14 is delivered by group of three or four orbits.

Figure 1 shows STIP data set arrival times at the Toulouse and Largo processing centers in 2005.



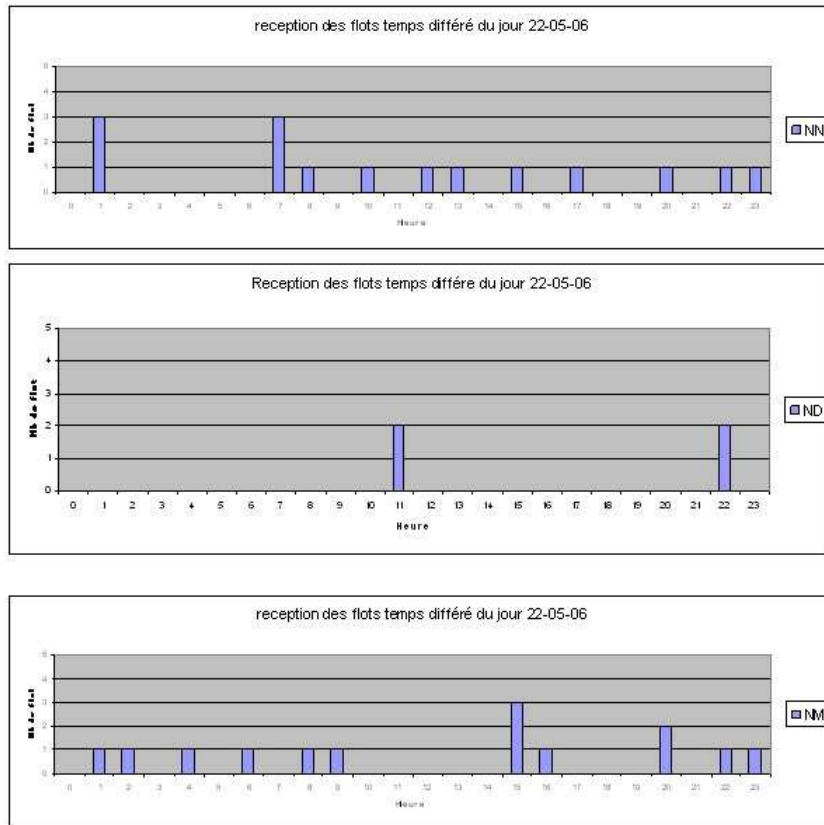


Figure 1

Figure 2 shows Local Equator crossing time (ascending node) and associated predictions for 6, 12 and 18 months in December 2005.

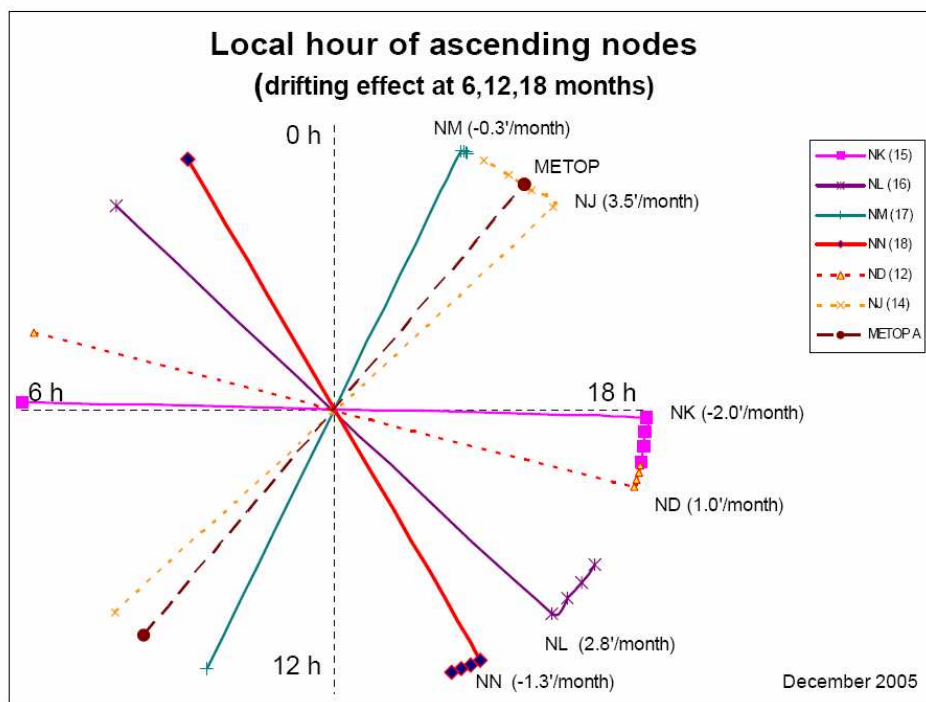


Figure 2

This extrapolation is based on the assumption that the orbital plane drifts in a linear fashion.

As NJ and ND are drifting significantly and in opposite directions, they will be in exactly the same plane, in 18 months for a short time period.

Since the decommissioning of NOAA-11 on June 16th, 2004, the Argos constellation includes 6 satellites and the data are distributed as follows (See figure 3) :

- Basic service: NOAA-17, NOAA-16
- Multi-satellite service: NOAA-18, NOAA-15, NOAA-14, NOAA-12.

Satellites	Launch date	NOAA status	Real time data (HRPT)	Stored data (STIP)	Data AVHRR
NOAA-18 (NN)	20-May-05	Standby	ok	Gilmore, Wallops	ok
NOAA-17 (NM)	24-Jun-02	Operational	ok	Gilmore, Wallops	ok
NOAA-16 (NL)	21-Sep-00	Operational	ok	Gilmore, Wallops	ok
NOAA-15 (NK)	13-May-98	Standby	ok	Gilmore, Wallops	ok
NOAA-14 (NJ)	30-Dec-94	Standby	ok	Gilmore, Wallops	ok
NOAA-12 (ND)	14-May-91	Standby	ok	Gilmore, Wallops (2 orbits/day)	ok

Figure 3

Regional stations

CLS and CLS America Inc. pursued their efforts in 2005 to increase and to consolidate the number of receiving stations able to provide TIP data sets from the NOAA satellites.

Four new stations joined the Argos network during the year: Shanghai (China, East China Sea Fisheries Research Institute), Tahiti (French Polynesia, Meteo France),Seoul (South Korea, Korea Meteorological Administration) and Hyderabad (India, INCOIS). The india antenna was able to cover a world area that wasn't covered yet. A new antenna is nearly ready to retrieve data from Libreville (Gabon, CLS).

Largo antenna was dismounted and used as spare parts in order to maintain same antenna type of the Argos network. Area Coverage is done by Wallops Island, Miami, Halifax.

There are currently 46 stations delivering TIP data sets to CLS and CLS America Inc. Most of them process data from NOAA-18, NOAA-17, NOAA-16, NOAA-15, NOAA-14 and NOAA-12, allowing us to maintain a good throughput times for results delivery.

List of regional receiving stations:

Antennas	Sigle	Country	Operator	Possible satellites
Athenes	AT	GREECE	CLS	ND,NJ,NK,NL,NM,NN
Aussaguel	AU	FRANCE	CLS	ND,NJ,NK,NL,NM,NN
Buenos Aires*	BA	ARGENTINA	INTA	ND,NJ,NK,NL,NM
Bitung	BI	INDONESIA	PT CLS	ND,NJ,NK,NL,NM,NN
Bali	BL	INDONESIA	PT CLS	ND,NJ,NK,NL,NM,NN
Casey	CA	AUSTRALIA	BOM	ND,NK,NL,NM
Santiago	CH	CHILE	Meteo Chile	ND,NK,NL,NM,NN
Las Palmas	CN	SPAIN	CLS	ND,NJ,NK,NL,NM,NN
Cayenne	CY	FRANCE	IRD	ND,NK,NL,NM
Darwin	DA	AUSTRALIA	BOM	ND,NK,NM
Edmonton	ED	CANADA	Envir. Canada	ND,NK,NL,NM
Fidji	FI	FIJI	FMS	ND,NK,NM
Gilmore	GC	UNITED STATES	NOAA/NESDIS	ND,NJ,NK,NL,NM,NN
Sondre	GR	GREENLAND	DMI	NK,NL,NM
Hatoyama	HA	JAPAN	NASDA/EOC	ND,NJ,NM
Halifax	HF	CANADA	Can. Coast Guard	ND,NK,NL,NM
Helsinki	HL	FINLAND	CLS	ND,NJ,NK,NL,NM,NN
Hawaï	HW	UNITED STATES	NOAA/NWS	ND,NK,NL,NM
Hyderabad	HY	INDIA	INCOIS	ND,NJ,NK,NL,NM,NN
Tokyo	JM	JAPAN	Jamstec	ND,NJ,NK,NL,NM,NN
Las Palmas	LP	SPAIN	Univ. Las Palmas	ND,NJ,NK,NL,NM
Melbourne	ME	AUSTRALIA	BOM	ND,NJ,NK,NL,NM,NN
Miami	MI	UNITED STATES	NOAA/AOML	NK,NL,NM
Monterey	MO	UNITED STATES	NESDIS/NWS	NL,NM,NN
Nouméa	NO	FRANCE	IRD	ND,NK,NM
Wellington	NZ	NEW ZEALAND	Met Office	NK,NL,NM
Oslo	OS	NORWAY	NMI	NJ,NK,NL,NM,NN
Punta Arenas	PA	CHILE	Meteo Chile	NK,NL,NM
Perth	PE	AUSTRALIA	BOM	ND,NJ,NK,NL,NM,NN
Lima	PR	PERU	CLS peru	ND,NJ,NK,NL,NM,NN
Petropavlosk	PT	RUSSIAN FEDERATION	Complex System	ND,NJ,NK,NL,NM,NN
Ile de la Réunion	RE	FRANCE	IRD	NK,NL,NM
Ile de la Réunion	RN	FRANCE	Météo France	NL,NM
Rothera	RO	INDONESIA	PT CLS	NJ,NK,NL,NM,NN
Murmansk	RU	RUSSIAN FEDERATION	Complex System	ND,NJ,NK,NL,NM,NN
Toulouse	RV	FRANCE	CLS	ND,NJ,NK,NL,NM,NN
Ryad	RY	UNITED ARAB EMIRATES	CLS	ND,NJ,NK,NL,NM,NN
Cape Town	SA	SOUTH AFRICA	CLS/SAWB	ND,NJ,NK,NL,NM,NN
Séoul	SE	KOREA, REPUBLIC OF	KMA	ND,NK,NL,NM,NN
Singapore	SG	CHINA	SMM	ND,NK,NM
Shangai	SH	CHINA	East China Sea Fisheries	ND,NK,NL,NM,NN
Tromsø	ST	NORWAY	KSAT	NK,NL,NM,NN
Papeete	TA	FRANCE	IRD	ND,NK,NL,NM,NN
Taiwan	TW	TAIWAN, REPUBLIC OF CHINA	National Taiwan Ocean Uni	NK,NL,NM,NN
Lannion	WE	FRANCE	Météo France	NL,NM,NN
Wallops	WI	UNITED STATES	NOAA/NESDIS	ND,NJ,NK,NL,NM,NN

* the only station to locate the satellites when they are situated at a 20° site angle

Antennas under agreement
CLS and subsidiaries antennas
Customer antennas under CLS maintenance contract
Antennas without written agreement ("Best effort")

Today coverage is shown on figure 4. The future Gabon antenna will cover central Africa in 2006. On figure 5, the percentage of data received in real-time depending of the location is displayed. More than 80% of the Argos messages are processed in real-time.

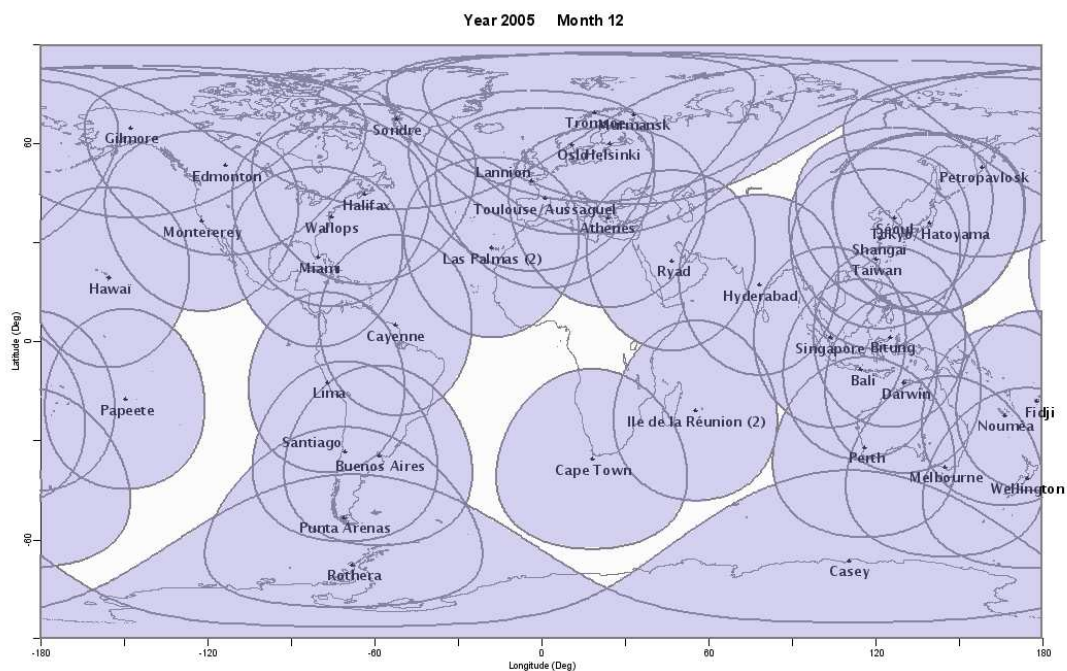


Figure 4

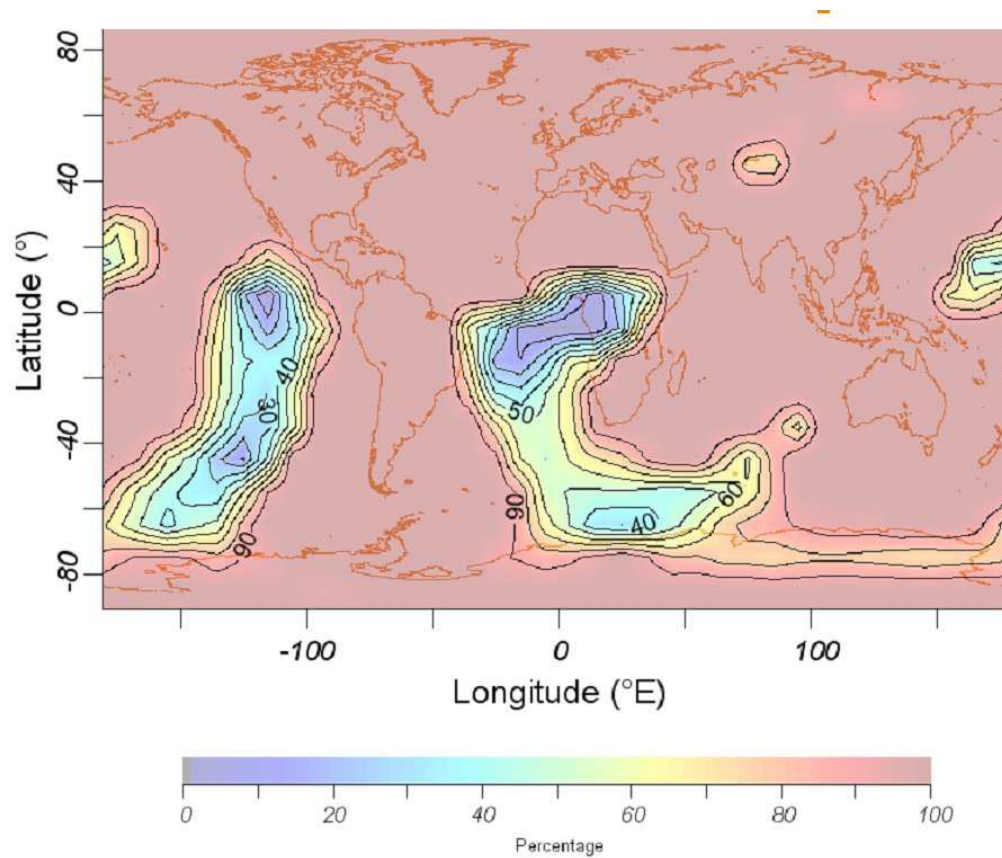
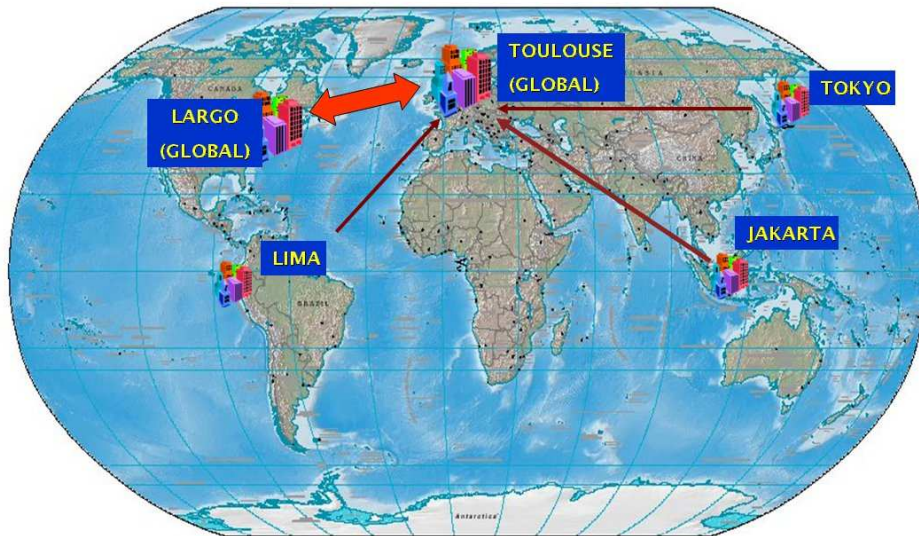


Figure 5

Processing centers



Global processing centers

The two global processing centers in Toulouse and Largo were nominal. More than 800 data sets per day (100 STIP data sets, 700 Real-time data sets) are processed in each centers (see Figure 4).

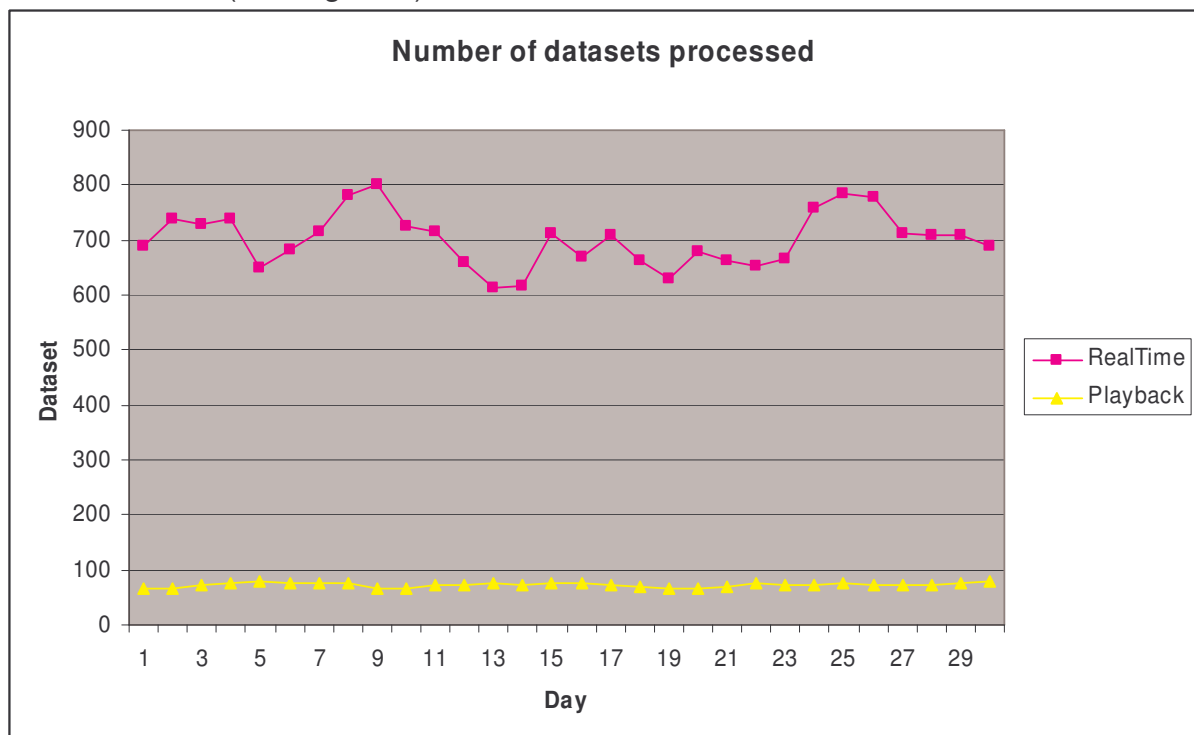


Figure 4

A major change was done into both global processing centers in 2005. Operational teams were trained in order to operate the redesign Argos software: Argos2001 (Phase2). Since April 2005, CLS and CLS America, Inc. are operating the new system.

Regional Processing Centers

The regional processing center in Tokyo (Japan) has encountered hardware problem in late 2005. During the maintenance, all services were provided by the Toulouse and Largo centers. Lima (Peru) and Djakarta (Indonesia) centers were nominal.

All the regional processing centers in Tokyo, Lima and Djakarta only process data sets from stations covering their region. Supplementary data providing global coverage are supplied by the Toulouse center or by the Largos center if necessary.

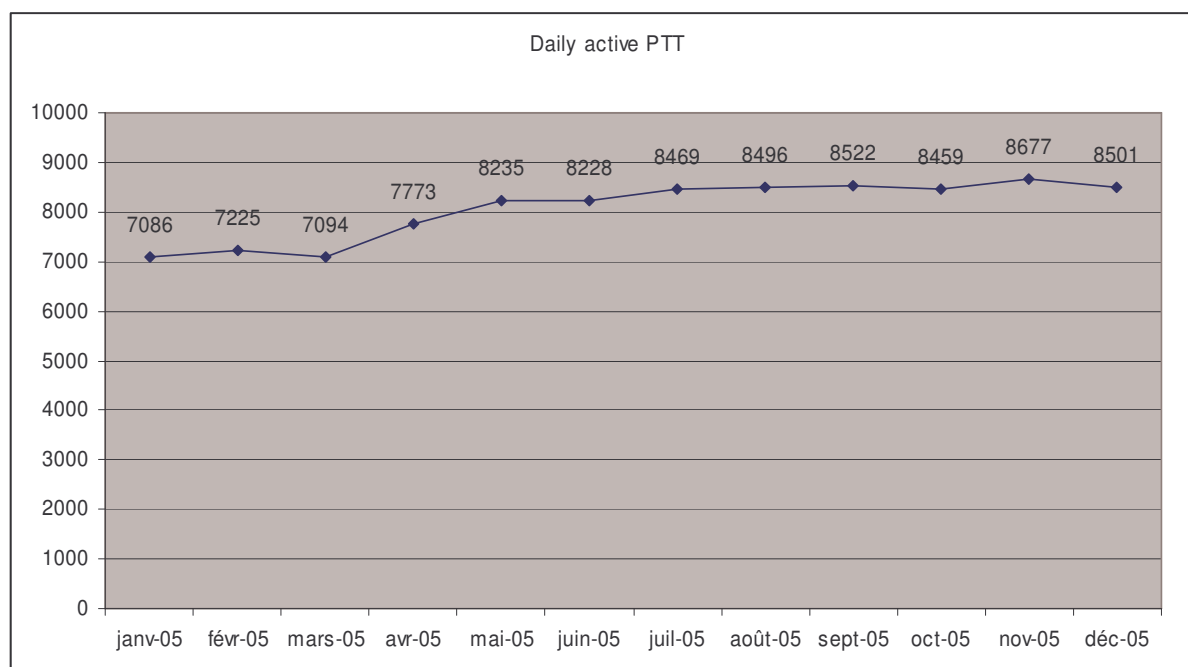
Communication links

The Internet is still the main communication link used to distribute processed data to users and to retrieve data sets from receiving stations. Security functionalities have been implemented as SSH, PGP.

The X25 protocol has been stopped at CLS America Inc but continues to be used by the Toulouse center to send data to a few users (less than 20) concerned by security reasons. This X25 protocol will be maintained during 2006.

Statistics

The number of Argos platforms operating continues to increase. In April 2005, more than 8000 platforms were seen on average per day. However, each of the two global centers processed data from 16 000 individual platforms during this month (figure 6).



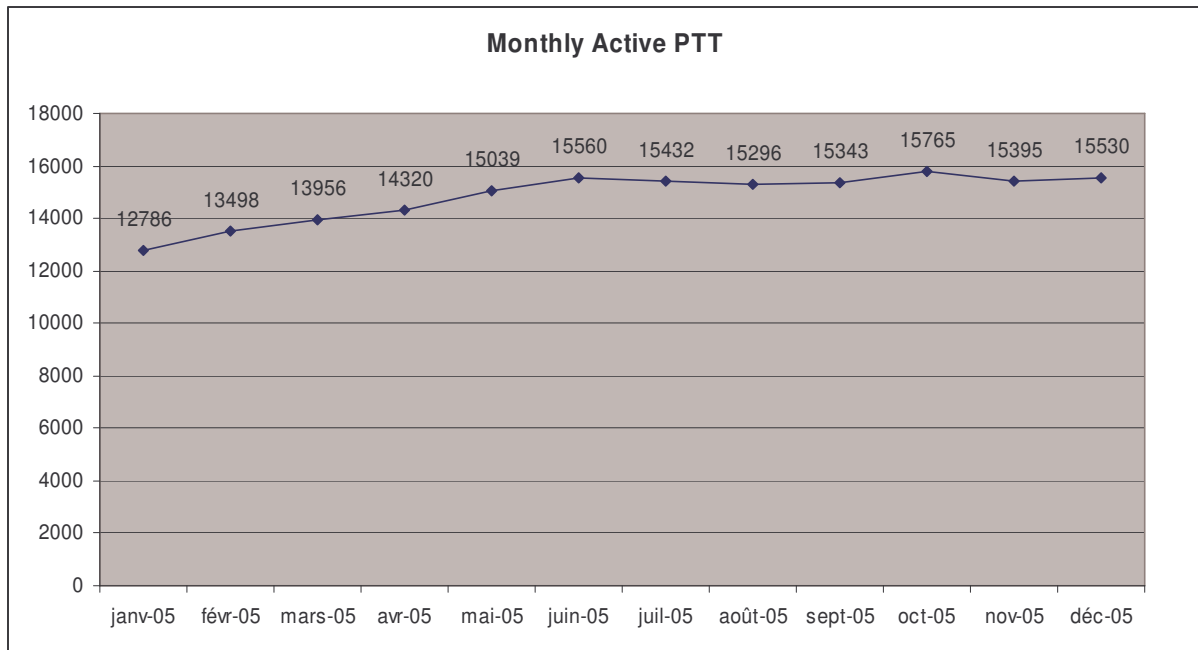


Figure 6

In 2005, the number of locations and messages computed every day by the Largo and Toulouse centers are, in average, 65 000 locations and 850 000 messages.

The Argos service was impacted by 2 electrical power problems at CLS and by the opening of ARGOS2001 Phase2. Nevertheless, the average availability is still maintained to 99,58%.

Figure 7 shows the ARGOS2001 availability at CLS in 2005. During the unavailability of the services in CLS, CLS America, Inc. was on backup.

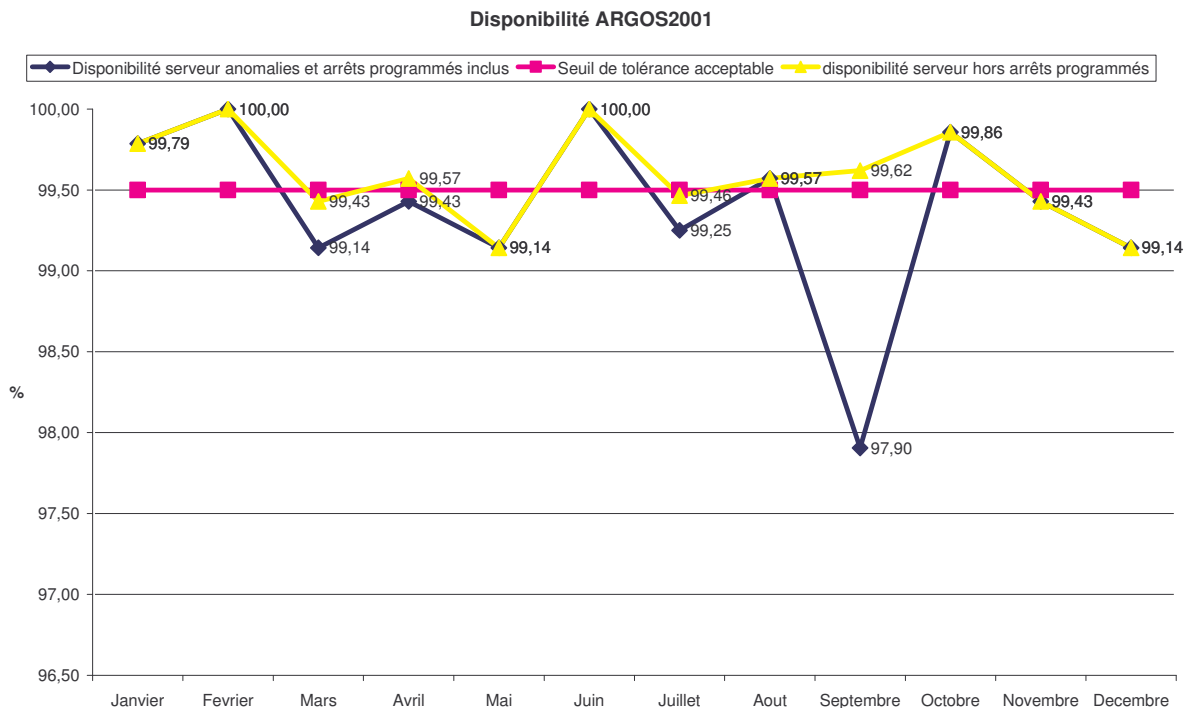


Figure 7

2006 Perspectives

- A new antenna in Gabon (Central Africa)
- CLS America, Inc. moving
- A new European satellite : METOP
- ARGOS2001 Phase3 installation
- Monthly Argos operation report available*

* Throughput times calculation have been redefined and will be implemented in 2006. Statistics on throughput times will be again available in 2006.